UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,940	11/29/2001	Holger Nolte	CRR0001	8873

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EXAMINER
BAYERL, RAYMOND J

ART UNIT	PAPER NUMBER
2173	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/001,940	NOLTE ET AL.
	Examiner	Art Unit	
	Raymond J. Bayerl	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 June 2005</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1 - 38</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1 - 38</u> is/are rejected.

7)☒ Claim(s) <u>2, 12, 16 - 21, 33</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 November 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

1.   Claims 2, 12, 16 – 21, 33 are objected to because of the following difficulties that appear related to applicant's 1 June 2005 amendment that creates the current copy of the claims. Appropriate correction is required.

At claim 2, line 3, applicant introduces a grammatical problem by deleting one of the instances of "at" in "co-located at at least one point", as was originally presented. The co-location, it turns out, is "at" a "point", this being "at least one point", so that "at at" was correct. A similar problem occurs with "at at" in claim 12.

In claim 16, it appears that difficulties were introduced in copying forward the original claim 16. At line 2, there is "movement on the two.-dimensional display device", and at line 3, it appears that applicant copied the line number "5" from the original: "a particular location of the two-5 dimensional graphical display device".

A more substantial problem exists in the text of claim 33, which is does not read as per the "(Original)"—whereas the current claim 33 has "a display device", "an application process" and "a rendering process", the original claim 33 had "a display device", "a frame buffer" and "object identification information". To expedite prosecution, the Examiner presumes that it was applicant's intent to carry forward the true "(Original)" copy of claim 33, and has based the examination upon the claim as originally presented in the papers filed 29 November 2001.

2.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3.   Claims 1 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Iwamura et al. ("Iwamura"; US #5,945,976) in view of Montgomery et al. ("Montgomery";

US #5,696,533).

As per independent claim 1's "graphical user interface" in which "a rendered

image of at least one graphical object" appears "on a display device", Iwamura's

GRAPHIC DATA PROCESSING SYSTEM produces scene data by which a three-

dimensional scene image is generated and displayed (Abstract). Please note such

displays as Iwamura's figs 14A, 14B, in which "graphical object" depictions appear in a

"graphical user interface".

While some form of "pixel" graphics *per se* is necessarily involved in Iwamura,

Iwamura does not extend to providing **explicit** teachings of "a color value stored for

each pixel" along with "object identification data stored with each pixel covered by the

rendered image", whereby this "identifies the graphical object located at the pixel",

though Iwamura's indication cursor appears to call up an "object" through some

procedure.

However, Montgomery's METHOD FOR SELECTING AN ITEM ON A

GRAPHICS SCREEN is one in which an item buffer is used to assign a unique item

identifier to members of a graphics object list (Abstract). The explicit teachings of

Montgomery in this regard appear in fig 2, where an item buf with item num entries is

run in parallel with a frame buf containing color values. This means that for each pixel

color indication, there is an item that corresponds to it, as in applicant's "color

value"/"object identification data stored with each pixel".

Thus, it would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to use the item buffer technique of Montgomery to assign "identification data" to the scene image objects of Iwamura. The motivation is to provide the Iwamura user with a direct indexing to the identities of the contents of the scene image, whereby the indication cursor, when pointed to an Iwamura object, will properly return "object identification" from the pre-stored Montgomery item buf contents at that pointed-to location.

Claim 2's "three-dimensional image comprising at least two graphical objects that are co-located" (see also claims 12, 23, 30) is seen in Iwamura, where one building appears behind another in fig 14A. Using the Montgomery item buffer, only the "visible graphical object" will obtain the value for that object in memory. A similar line of reasoning applies to claim 13.

The "writing" (claims 3, 14, 25) and "reading" (claims 4, 15) of "frame buffer" data occurs in Montgomery (thus "describing how each graphical element is to be displayed" along with an "object identification value" in a parallel "frame buffer" organization (see claim 26)), and the use of a "cursor pointing to a particular coordinate" (claims 5, 16) is part of both Iwamura, with the indication cursor and Montgomery, with a pointer device. In the combination of references, "reading the object identification data" (claims 6, 10, 17, 27, 31) takes place in Montgomery, to supply "object identification data" for Iwamura's scene.

Claim 7's "exporting the object identification information" (see also claim 18) is seen in Iwamura, where "metadata information" (claims 8, 19, 28, 32) as appears in the

region 1207 or 1303 (fig 15A) is provided. This data is made part of an "object-identification value indexed data structure" (claims 9, 20), when the Montgomery <u>item buffer</u> values are used to call such data from Iwamura's store. See also claim 21, in which "a metadata information display object" reads upon Iwamura's supplemental <u>scene</u> display.

Independent claim 11's "rendering an image of a plurality of graphical objects" reads upon Iwamura, for reasons similar to those given above for claim 1, and the use of "a color value" and "object identification data for each of the specified locations" is then suggested by the combination with Montgomery, where "locations" are indicated by the <u>item buffer</u> designations for the pixels that are involved. A similar line of reasoning applies to independent claims 22, 33.

Independent claim 24's "associating a unique object identification value with each graphical element" is suggested by Montgomery, when applied to the "graphical element" composition of Iwamura's <u>scene</u>. There, the "data structure" behind the supplemental displays will add <u>metadata</u> to the <u>item num</u> listings in Montgomery. A similar line of reasoning applies to independent claim 29.

The "computerized system" in claim 34, with its "pixels" that have "a unique object identification (ID) value" reads upon Montgomery, as noted above. The "rendering process" that determines "visible surfaces", as also discussed above, is seen in Iwamura. Montgomery then provides a "pixel map" to accomplish "object identification" of those objects that are Iwamura-rendered.

The use of "a pointer" in relation to "at least one graphical object" (independent claim 35) is found in Iwamura, and the "frame buffer" whose "first field" is "for holding display information" and whose "second field" is "for holding object identification information" is suggested by Montgomery.

The "frame buffer" of independent claim 36 is largely suggested by the "pixel" "memory locations" of Montgomery, which can be used in combination with the display of "a unique software graphical object" as per Iwamura.

New independent claim 37's "graphical user interface", in which "there is stored a respective color value for each pixel in the display device", along with "object identification data stored with each pixel" also reads upon the combination of Iwamura's "three-dimensional graphical object rendering", when combined with Montgomery's parallel buffering of color and item information.

New independent claim 38's "rendered image produced using a z-buffer technique" is suggested by the display of overlapping objects with hidden surface removal in Iwamura, especially when considered in view of the item buffering of Montgomery, where a frontmost item is indicated for each pixel. The comparison and retention of closest z-values is a part of any arrangement in which pixels must be shown with topmost priority in a "three-dimensional graphical" display. Claim 38's use of "object identification data stored with each pixel" is then seen, as has been noted above, in Montgomery, whose returning of a visible item identification for each pixel would have a direct usefulness in the access of related data as is illustrated in Iwamura.

4.   Applicant's arguments filed 1 June 2005 have been fully considered but they are

not persuasive.

After noting at page 13 of the 1 June 2005 remarks that "Iwamura makes no

mention that any component of its graphics system uses either: (1) a color value stored

for each pixel, or (2) object identification data stored with each pixel covered by a

rendered image", the reason the Examiner has relied additionally upon Montgomery,

applicant notes that because in Montgomery's explicit teaching "there is but a single

color available for each object", "Montgomery does not teach, suggest or even

appreciate the use of a device that allows a separate color value stored for each pixel".

However, the Examiner first wishes to point out that in the present claims, the word

"separate" is not associated with "a color value stored for each pixel" (claim 1 quoted as

exemplary". But more importantly, Montgomery specifically has pixel-by-pixel storage

across an object's surface, even if the example given is of solidly-colored objects. This

means that "for each pixel", "a color value" is maintained. This is readily adaptable to

the situation of arbitrary pixel colors being assigned across an object, such as might

occur with lighting models or surface details in Iwamura.

The Iwamura system, with its plurality of distinct objects that have a need to be

rendered, has a direct suggestion that a pixel graphics system such as Montgomery's,

which handles the two-dimensional details of individual pixels having individual item IDs,

would be useful in producing the correct results when a pointer is made to indicate an

Iwamura object, to answer applicant's arguments at pages 14 – 15, about there being

"no motivation...to modify Iwamura using the teachings of Montgomery". Once a z-

buffer determines which pixels correspond to objects having frontmost priority in Iwamura, the item buffer of Montgomery would then be an obvious solution to the need that arises to have pixel-addressable item indications for those pixels. It is not true, as applicant asserts at page 15, that "the devices and methods of Montgomery are totally unsuitable for use with Iwamura, or in any system using modern three-dimensional graphics rendering", since the resultant output of such rendering is a two dimensional image, whose pixels are then directly handled by a pixel-by-pixel arrangement such as Montgomery's.

5.   Applicant's amendment necessitated the new ground(s) of objection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond J. Bayerl whose telephone number is (571)

272-4045. The examiner can normally be reached on M - Th from 9:00 AM to 4:00 PM

ET.

7.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Cabeca, can be reached on (571) 272-4048. All patent application

related correspondence transmitted by FAX **must be directed** to the central FAX

number (571) 273-8300.

8.   Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (571) 272-

2100.

RAYMOND J. BAYERL
PRIMARY EXAMINER
ART UNIT 2173
28 July 2005